

THE INVENTION CLAIMED IS:

Sub A2
1. A real time video system for outputting to a screen signals for displaying color images that are adjusted for color blindness from original color images encoded in a real time video signal, the video system comprising:
a decoder for decoding the video signal into at least one original color signal associated with a color of the original image; and
a processor coupled with the decoder for receiving the original color signal, and for outputting to the screen at least a first color signal adjusted from the original color signal for compensating for a first type of color blindness.

2. The system of claim 1, wherein the processor outputs a second color signal adjusted from the original color signal for compensating for a second type of color blindness, and further comprising means for selecting to output one of the first and the second adjusted color signals.

3. The system of claim 1, wherein the original color signal is associated with a series of ordered sets of original samples, and wherein the adjusted color signal is associated with a series of ordered sets of samples adjusted from the original samples according to a first color gamut adjustment predefined for the first type of color blindness.

4. The system of claim 3, wherein the original samples represent original values, each original value associated with a content of a respective one of a plurality of predefined primary colors, the adjusted samples represent adjusted values, each adjusted value associated with a content of a respective one of the primary colors, and wherein the system further comprises a memory coupled with the processor and having stored therein the sets of original values and the first set of adjusted values.

5. The system of claim 4, further comprising means for combining the original samples of a single ordered set thereby generating a single sample for inputting into the memory as an address.

1 6. The system of claim 4, wherein the memory reads out a single sample for each input
2 ordered set of original samples, and further comprising means for extracting from the
3 sample output by the memory an ordered set of adjusted samples.

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5 7. The system of claim 1, further comprising a screen coupled with the processor for
6 receiving the adjusted color signal, the screen thereby displaying in real time color images
7 adjusted from the original images for compensating for the first type of color blindness.

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1 8. A method for adjusting real time color images encoded in a video signal suitable for
2 producing a display on a screen comprising:
3 decoding the video signal into at least one original color signal associated with a
4 color of the original image;
5 generating an adjusted signal from the original color signal according to a first
6 transform associated with a first type of color blindness; and
7 applying the adjusted signal to the screen, the screen thereby displaying color images
8 adjusted for the first type of color blindness.

1 9. The method of claim 8, further comprising:
2 using a reference color image to generate at least one reference color signal
3 associated with a color of the reference image;
4 generating an adjusted signal from the reference color signal according to a tested
5 transform associated with a tested type of color blindness;
6 applying the adjusted signal to the screen, the screen thereby displaying a reference
7 image adjusted for the tested type of color blindness;
8 accepting an input from a viewer as to whether the adjusted reference image is
9 desirable; and
10 if the adjusted reference image is desirable, using the tested transform as the first
11 transform.

1 10. The method of claim 9 wherein accepting is by using a remote control unit.

Sub A3
Cncl. 11. The method of claim 9, further comprising generating an adjusted signal from the
2 reference signal according to a second tested transform associated with a second tested type
3 of color blindness.

12. The method of claim 9, further comprising partitioning the screen into a plurality of
2 sections, and wherein the adjusted reference image is displayed in only one of the sections.

13. The method of claim 8, further comprising digitizing the original color signal to
2 produce at least one original value, and wherein generating is performed by looking up in a
3 memory an adjusted value corresponding to the original value.

Sub A4 14. The method of claim 13, further comprising:
2 selecting a set of coordinates for defining a color space;
3 selecting a type of color blindness;
4 characterizing the selected type of color blindness with respect to the coordinates as
5 at least one discernible region in the color space;
6 selecting a color gamut adjustment that maps at least one region outside the
7 discernible region into the discernible region;
8 generating the original values and the adjusted values that perform the color gamut
9 adjustment; and
10 storing the original values and the adjusted values in a look up table in the memory.

15. The method of claim 14, wherein the memory is an EPROM, and wherein storing is
2 performed by burning in the EPROM.

16. The method of claim 14, wherein selecting includes contracting a portion of the
2 discernible region.

17. The method of claim 14, wherein selecting includes rotating at least a portion of one
2 of the regions.

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